Master Syllabus

1. **COURSE NAME:** Physics II

2. **COURSE PREFIX AND NUMBER:** PHYS 220/2200

3. **COURSE DESCRIPTION:** Provides fundamental concepts of harmonic motion, waves, heat, light, electricity and magnetism are studied and students learn to set-up and solve problems associated with those topics, using algebra and trigonometry.

4. **PRE-REQUISITE:** PHYS 210/2100

5. **COURSE OBJECTIVES:** Upon successful completion of this course, the student will be able to:

    1. Define Temperature and distinguish between the temperature scales.

    2. State and use the Laws of Thermodynamics, the Kinetic Theory of Gases, and the Ideal Gas Law.

    3. Display knowledge of and solve problems pertaining to linear and volume thermal expansion.

    4. Display knowledge of and solve problems pertaining to heat and internal energy, specific heat capacity, and phase change.

    5. Display knowledge of and solve problems pertaining to heat transfer.

    6. Recognize the types of thermal processes.

    7. Display knowledge of and solve problems pertaining to sound and sound waves.

    8. Display knowledge of and solve problems pertaining to superposition of waves, specifically constructive and destructive interference, diffraction, beats and standing waves.

    9. Display knowledge of and solve problems pertaining to electric fields and forces.

    10. Display knowledge of and solve problems pertaining to electric potential energy and electric circuits.

    11. Recognize the difference between series, parallel, and mixed circuits.

    12. Display knowledge of and solve problems pertaining to magnetic fields and forces.

    13. Define the speed of light.

    14. Display knowledge of and solve problems pertaining to fundamental optics including reflection, refraction, interference, and diffraction of light.

15. Understand at a basic level the basic physical laws and theories of waves, heat, electricity and magnetism, and light,

16. Solve word problems using the rules of classical and modern physics.

17. Apply problem solving skills acquired through this course to everyday situations.

6. **COURSE OUTLINE:**

1. Wave motion

2. Sound

3. Thermodynamics

4. Electricity and Magnetism

5. Physical and Geometric Optics.